What is claimed is:

1. An electrolytic capacitor comprising:

a first electrode;

a second electrode corresponding to said first electrode;

an ionic conducting polymer electrolyte separator for electrically separating said first and second electrodes, said separator comprising i) common solvent for an electrolyte and for dissolving polymer and ii) polymer at least one selected from the group consisting of polymer of polyacrylate series, polyvinylidenefluoride (PVdF), copolymer of polyvinylidenefluoride and polymer of polyether series; and

first and second terminals for respectively attached to said first and second electrodes.

2. The electrolytic capacitor as claimed in claim 1, wherein said common solvent is composed of propylene carbonate (PC).

3. The electrolytic capacitor as claimed in claim 2, wherein said common solvent comprises alkylammonium compounds such as tetraethylammoniumtetrafluoroborate (Et_4NBF_4) or amide compounds such as tertiary amide.

4. The electrolytic capacitor as claimed in claim 2, wherein said polymer is composed of polyacrylonitrile (PAN) and polyvinylidenefluoride.

5. The electrolytic capacitor as claimed in claim 4, wherein a weight ratio between the polyacrylonitrile and the polyvinylidenefluoride is approximately 1:1 to 5:1.

6. The electrolytic capacitor as claimed in claim 4, wherein a weight ratio between said common solvent and said polymer is approximately 4:1 to 10:1.

7. The electrolytic capacitor as claimed in claim 2, wherein said polymer is composed of polymethylmethacrylate (PMMA) and polyacrylonitrile.

8. The electrolytic capacitor as claimed in claim 7, wherein a weight ratio between the polymethylmethacrylate and the polyacrylonitrile is approximately 1:1 to 4:1.

9. The electrolytic capacitor as claimed in claim 1, wherein said common solvent is composed of gamma-butyrolactone (γ-BL).

10. The electrolytic capacitor as claimed in claim 9, wherein said common solvent comprises alkylammonium compounds such as tetraethylammoniumtetrafluoroborate (Et_4NBF_4) or amide compounds such as tertiary amide.

11. The electrolytic capacitor as claimed in claim 9, wherein said polymer is composed of polyacrylonitrile.

12. The electrolytic capacitor as claimed in claim 11, wherein a weight ratio between said common solvent and said polymer is approximately 5:1 to 8:1.

13. The electrolytic capacitor as claimed in claim 1, wherein said common solvent is composed of propylene carbonate and gamma-butyrolactone.

14. The electrolytic capacitor as claimed in claim 13, wherein said common solvent comprises alkylammonium compounds such as tetraethylammoniumtetrafluoroborate (Et_4NBF_4) or amide compounds such as tertiary amide.

15. The electrolytic capacitor as claimed in claim 14, wherein an amount of the propylene carbonate is more than that of the gamma-butyrolactone.

16. The electrolytic capacitor as claimed in claim 13, wherein said polymer is composed of polyacrylonitrile and polyvinylidenefluoride or polyethylene oxide.

17. The electrolytic capacitor as claimed in claim 1, wherein said separator is formed on said first electrode, and said separator, said first electrode and said second electrode are wound together.

18. The electrolytic capacitor as claimed in claim 17, wherein said first electrode is a cathode.

19. The electrolytic capacitor as claimed in claim 18, wherein an activated carbon is coated on said first electrode.

20. The electrolytic capacitor as claimed in claim 17, said electrolytic capacitor further comprising an additional electrolyte injected in said first electrode and said second electrode.

21. The electrolytic capacitor as claimed in claim 20, wherein said additional electrolyte is identical to the common solvent of said separator or different from the common solvent of said separator.

22. The electrolytic capacitor as claimed in claim 17, wherein said first electrode is longer and wider than said second electrode.

23. The electrolytic capacitor as claimed in claim 17, said electrolytic capacitor further comprising an isolating means formed on an end portion of said first electrode or a portion of said second electrode where an end portion of said first electrode is positioned.

24. The electrolytic capacitor as claimed in claim 23, wherein the isolating means is composed of a tape or a paper.

25. An electric energy storage device having an ionic conducting electrolyte comprising:

a first electrode;

a gel type ionic conducting polymer electrolyte separator formed on said first electrode; and

a second electrode corresponding to said first electrode, wherein said separator, said first electrode and said second electrode are wound together.

26. The electric energy storage device having an ionic conducting electrolyte as claimed in claim 25, wherein said first electrode is a cathode and an activated carbon is coated on

said first electrode.

27. The electric energy storage device having an ionic conducting electrolyte as claimed in claim 25, said electric energy storage device further comprising an additional electrolyte injected into said first and second electrodes after said separator, said first and second electrodes are wound together to form the electric energy storage.

28. The electric energy storage device having an ionic conducting electrolyte as claimed in claim 27, wherein the additional electrolyte is identical to common solvent of said separator or different from the common solvent of said separator.

29. The electric energy storage device having an ionic conducting electrolyte as claimed in claim 25, wherein said first electrode is longer and wider than said second electrode.

30. The electric energy storage device having an ionic conducting electrolyte as claimed in claim 25, said electric energy storage device further comprising an isolating means formed on an end portion of said first electrode or a portion of said second electrode where an end portion of said first electrode is positioned.

31. The electric energy storage device having an ionic conducting electrolyte as claimed in claim 30, wherein the isolating means is composed of a tape or a paper.

33. A method for manufacturing an electric energy storage device comprising the steps of:

forming an ionic conducting polymer electrolyte separator comprising i) preparing common solvent for an electrolyte and for dissolving polymer and ii) dissolving polymer at least one selected from the group consisting of polymer of polyacrylate series, polyvinylidenefluoride, copolymer of polyvinylidenefluoride and polymer of polyether series in said common solvent.

34. The method for manufacturing an electric energy storage device as claimed in claim 33, wherein the step of forming said separator further comprises steps of heating a mixture of said common solvent and said polymer and coating said mixture on a current collector.

35. The method for manufacturing an electric energy storage device as claimed in claim 33, wherein said common solvent is composed of propylene carbonate.

36. The method for manufacturing an electric energy storage device as claimed in claim 35, wherein said common solvent comprises alkylammonium compounds such as tetraethylammoniumtetrafluoroborate or amide compounds such as tertiary amide.

37. The method for manufacturing an electric energy storage device as claimed in claim 35, wherein the step of dissolving said polymer is performed by homogeneously dispersing polyacrylonitrile and polyvinylidenefluoride in said common solvent.

38. The method for manufacturing an electric energy storage device as claimed in claim 35, wherein the step of dissolving said polymer is performed by homogeneously dispersing polymethylmethacrylate and polyacrylonitrile in said common solvent.

39. The method for manufacturing an electric energy storage device as claimed in claim 33, wherein said common solvent is composed of gamma-butyrolactone.

40. The method for manufacturing an electric energy storage device as claimed in claim 39, wherein said common solvent comprises alkylammonium compounds such as tetraethylammoniumtetrafluoroborate or amide compounds such as tertiary amide.

41. The method for manufacturing an electric energy storage device as claimed in claim 39, wherein the step of dissolving said polymer is performed by homogeneously dispersing polyacrylonitrile in said common solvent.

42. The method for manufacturing an electric energy storage device as claimed in claim 33, wherein said common solvent is composed of propylene carbonate and gamma-butyrolactone.

43. The method for manufacturing an electric energy storage device as claimed in claim 42, wherein the step of preparing said common solvent further comprises a step of dissolving alkylammonium compounds such as tetraethylammoniumtetrafluoroborate or amide compounds such as tertiary amide.

44. The method for manufacturing an electric energy storage device as claimed in claim 42, wherein the step of dissolving said polymer is performed by homogeneously dispersing polyacrylonitrile and polyvinylidenefluoride or polyethylene oxide in said common solvent.

45. The method for manufacturing an electric energy storage device as claimed in claim 33, said method further comprising steps of forming said separator on a first electrode and winding said first electrode with a second electrode.

46. The method for manufacturing an electric energy storage device as claimed in claim 45, wherein said method further comprising a step of directly coating said separator on said first electrode.

47. The method for manufacturing an electric energy storage device as claimed in claim 46, wherein said first electrode is a cathode having an activated carbon coated thereon.

48. The method for manufacturing an electric energy storage device as claimed in claim 45, wherein said method further comprises a step of injecting an additional electrolyte in said first electrode and said second electrode.

49. The method for manufacturing an electric energy storage device as claimed in claim 48, wherein said additional electrolyte is identical to the common solvent of said separator or different from the common solvent of said separator.

50. The method for manufacturing an electric energy storage device as claimed in claim 45, wherein said first electrode is longer and wider than said second electrode.

51. The method for manufacturing an electric energy storage device as claimed in claim 50, wherein said step of winding said first electrode with said second electrode is performed

after said first electrode is previously wound at least half a revolution.

52. The method for manufacturing an electric energy storage device as claimed in claim 50, wherein said step of winding said first electrode with said second electrode is performed by winding said first electrode more than said second electrode.

53. The method for manufacturing an electric energy storage device as claimed in claim 45, wherein said step of winding said first electrode with said second electrode further comprises forming an isolating means on an end portion of said first electrode or a portion of said second electrode where an end portion of said first electrode is positioned.

54. The method for manufacturing an electric energy storage device as claimed in claim 53, wherein said isolating means is composed of a tape or a paper.